

LAMPIRAN A

Program Arduino IDE

```
//#include "Adafruit_Thermal.h">//librari printer
//#include <BluetoothSerial.h>//librari bt serial
#include <Keypad_I2C.h>
#include <Keypad.h> // GDY120705
#include <Wire.h>
#include <LiquidCrystal_I2C.h>
#include <WiFi.h>
#include <FirebaseESP32.h>
#include <addons/TokenHelper.h>
#include <addons/RTDBHelper.h>
#define WIFI_SSID "Ta bagus"
#define WIFI_PASSWORD "00000000"
#define API_KEY
"AIzaSyCBPQ8BaAm4IKyKJQPKDNxhZgnPPTos1k8"
#define DATABASE_URL "https://mark4-default-rtdb.firebaseio.com"
#define USER_EMAIL "tadhamar1@gmail.com"
#define USER_PASSWORD "tadhamar1802"
#define I2CADDR 0x21
#define SENSOR 27
#define relay 13
const byte ROWS = 4; //four rows
const byte COLS = 4; //four columns
//define the symbols on the buttons of the keypad
char hexaKeys[ROWS][COLS] = {
  {'1', '4', '7', '*'},
  {'2', '5', '8', '0'},
  {'3', '6', '9', '#'},
  {'A', 'B', 'C', 'D'}
};
byte rowPins[ROWS] = {3, 2, 1, 0}; //connect to the row pinouts of the
keypad
byte colPins[COLS] = {7, 6, 5, 4}; //connect to the column pinouts of
the keypad
char customKey ;
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int interval = 1000
boolean ledState = LOW;
float calibrationFactor = 6.5;
volatile byte pulseCount;
byte pulse1Sec = 0;
float flowRate;
float m3;
unsigned int flowMilliLitres, totalMilliLitres, currentMillis = 0,
previousMillis = 0, sendDataPrevMillis = 0;
String randomData;
String randomKey;
String hargaStr;
unsigned long regane, randomSet, randomDB, hargaPerML = 10,
hargaLimit;
byte sistemON;
int dataChange = 0;
bool signupOK = false;
//uint8_t address[6] = {0x86, 0x67, 0x7A, 0xEE, 0x81, 0xC8};
//String name = "RPP02N";//nama printer e
//char *pin = "0000"; //<- standard pin would be provided by default
//bool connected;//kondisi koneksi
//
//BluetoothSerial SerialBT;
//Adafruit_Thermal printer(&SerialBT); // Pass addr to printer
constructor
Keypad_I2C customKeypad( makeKeymap(hexaKeys), rowPins,
colPins, ROWS, COLS, I2CADDR);
LiquidCrystal_I2C lcd(0x27, 16, 2);
FirebaseData fbdo;
FirebaseAuth auth;
FirebaseConfig config;
void IRAM_ATTR pulseCounter()
{
  pulseCount++
}
void setup() {
  Serial.begin(115200);
  lcd.begin();
  WiFi.begin(WIFI_SSID, WIFI_PASSWORD);

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Serial.print("Connecting to Wi-Fi");
while (WiFi.status() != WL_CONNECTED)
{
  lcd.setCursor(0, 0);
  lcd.print(WIFI_SSID);
  lcd.setCursor(0, 1);
  lcd.print(WIFI_PASSWORD);
  Serial.print(".");
  delay(300);
}
Serial.println();
Serial.print("Connected with IP: ");
Serial.println(WiFi.localIP());
Serial.println();
Serial.printf("Firebase Client v%s\n\n",
FIREBASE_CLIENT_VERSION);
config.api_key = API_KEY;
auth.user.email = USER_EMAIL;
auth.user.password = USER_PASSWORD;
config.database_url = DATABASE_URL;
config.token_status_callback = tokenStatusCallback; //see
addons/TokenHelper.h
Firebase.begin(&config, &auth);
Firebase.reconnectWiFi(true);
Firebase.setDoubleDigits(5);
// btSetup();
pinMode(SENSOR, INPUT_PULLUP);
pinMode(relay, OUTPUT);
pinMode(2, OUTPUT);
digitalWrite(relay, HIGH);
delay(1000);
digitalWrite(relay, LOW);
delay(1000);
digitalWrite(relay, HIGH);
pulseCount = 0;;
flowRate = 0.0;

flowMilliLitres = 0;
totalMilliLitres = 0;

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previousMillis = 0;
attachInterrupt(digitalPinToInterrupt(SENSOR), pulseCounter,
FALLING);
Wire.begin( );          // GDY200622
customKeypad.begin( ); // GDY120705
lcd.clear();
delay(10);
}
void loop() {
readingSensor();
// firebaseGetData();
printingAll();
if (customKey == 'A') {
    lcd.clear();
    randomKey = ""; //tambahih
    sistemON = sistemON + 1;
    delay(200);
}
if (sistemON >= 3) {
    sistemON = 0;
}
switch (sistemON) {
case 0:
    firebaseGetData();
    totalMilliLitres = 0;
    lcd.setCursor(0, 0);
    lcd.print(" tekan key 'A' ");
    lcd.setCursor(0, 1);
    lcd.print(" untuk pengisian");
    break;
case 1:
    if (customKey == '0' || customKey == '1' || customKey == '2' ||
customKey == '3' || customKey == '4' || customKey == '5' || customKey
== '6' || customKey == '7' || customKey == '8' || customKey == '9') {
        randomKey = randomKey + customKey;

        randomSet = randomKey.toInt();
    }
    else if (customKey == 'C') {

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    randomKey = "";
}
lcd.setCursor(0, 0);
lcd.print(" masukan token ");
lcd.setCursor(0, 1);
lcd.print(String(randomKey) + " ");
break;
case 2:
lcd.setCursor(0, 0);
lcd.print(String(totalMilliLitres) + "mL ");
lcd.setCursor(0, 1);
lcd.print("Rp." + String(hargaLimit) + " ");
if (randomSet == randomDB) {
    if (hargaLimit >= regane ) {
        hargaLimit = regane;//limit pengisian
        digitalWrite(relay, HIGH);
        randomKey = "";
        Firebase.setInt(fbdo, F("/randomBagas"), 0) ? "ok" :
fbdo.errorReason().c_str();
        dataChange = 0;//limit printer biar ngga loop
        sistemON = 0;
    }
    else {
        digitalWrite(relay, LOW);
        Serial.println ("prosesNgisi");
    }
}
else {
    digitalWrite(relay, HIGH);
}
break;
}
if (regane == 10000) { //dari db
    hargaLimit = totalMilliLitres * hargaPerML;

}
else if (regane == 20000) {
    hargaLimit = totalMilliLitres * hargaPerML;
}

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else if (regane == 50000) {
    hargaLimit = totalMilliLitres * hargaPerML;
}
else if (regane == 100000) {
    hargaLimit = totalMilliLitres * hargaPerML;
}
else {
    hargaLimit = 0;
}
}
}
void firebaseGetData() {
    if (Firebase.ready() && (millis() - sendDataPrevMillis > 5000 ||
sendDataPrevMillis == 0))
    {
        digitalWrite(2, HIGH);
        randomData = Firebase.getString(fbdo, F("/randomBagas")) ?
fbdo.to<const char *>() : fbdo.errorReason().c_str();
        hargaStr = Firebase.getString(fbdo, F("/10kbagas")) ? fbdo.to<const
char *>() : fbdo.errorReason().c_str();

        sendDataPrevMillis = millis();
    }
    digitalWrite(2, LOW);
    randomDB = randomData.toInt();
    regane = hargaStr.toInt() * 1000;
}
void printingAll() {
    Serial.print(" mili liter=" + String(totalMilliLitres));
    Serial.print(" liter=" + String(totalMilliLitres / 1000));
    Serial.print(" random DB=" + String(randomDB));
    Serial.print(" hargaDB=" + String(regane));
    Serial.print(" hargaLimit=" + String(hargaLimit));
    Serial.print(" key" + String(randomKey));

    Serial.print(" sistem" + String(sistemON));
    Serial.println();
}
void readingSensor() {
    customKey = customKeypad.getKey();
}

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currentMillis = millis();
if (currentMillis - previousMillis > interval) {

    pulse1Sec = pulseCount;
    pulseCount = 0;
    flowRate = ((1000.0 / (millis() - previousMillis)) * pulse1Sec) /
calibrationFactor;
    previousMillis = millis();
    flowMilliLitres = (flowRate / 60) * 1000;
    totalMilliLitres += flowMilliLitres;
    m3 = (totalMilliLitres / 1000) * 0.001 ; /*0.001
//   Serial.print("mL / ");
//   Serial.print(totalMilliLitres / 1000);

}
}

```


LAMPIRAN B
Dokumentasi Kegiatan

Perakitan Mekanikal



BIODATA PENULIS



Nama : Fahriansyah Bagas Anugrah
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Cilacap Utara, Kab. Cilacap
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Hobi : Bermusik
Motto : Sebaik-baiknya orang adalah bermanfaat
bagi orang lain

Riwayat Pendidikan

Sekolah/Institusi/ Universitas	Jurusan	Periode
SDN Mertasinga 03	-	2008-2014
SMP N 5 Cilacap	-	2014-2017
SMK N 2 Cilacap	Teknik Pembangkit Listrik	2017-2020
Politeknik Negeri Cilacap	D3 Teknik Elektronika	2020-2023

Penulis telah mengikuti Sidang Tugas Akhir pada 1 Agustus 2023 sebagai salah satu persyaratan untuk memperoleh gelar Ahli Madya (A.Md).